

FERNALD AS A BOTANIST

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SELDOM is it possible to say in truth that a man's life was his work. But such a statement seems not an exaggeration when applied to Merritt Lyndon Fernald. Even during his last years he worked with aggressive intensity, and it seemed to those around him that he hurried as if to forestall the lengthening shadow of age that was so incessantly compressing the time left to complete the tasks he had set. His hours of labor at the herbarium daily were extended into the night at home. A mild thrombosis, which he suffered on two occasions, scarcely slowed the tempo of the writing that had flowed from his pen like a torrent for half a century. At work, he rarely stopped except to read aloud from his writings to almost anyone who chanced to be near. Scarcely a visiting botanist to the Gray Herbarium departed without having been "read to." He seemed to evolve clarity of expression from reading aloud and on each occasion would busily correct or annotate the manuscript. Perhaps the dominant influence upon his professional work were his tremendous industry and a strong devotion to taxonomic botany.

Professor Fernald's career formally began immediately after graduation from college but it might be appropriately calculated from his first publication in 1890. Possibly because of his own early interest in natural history, he was a strong believer in the dictum that "natural scientists are born, not made." His first studies were "in the field" and he was fortunate enough to maintain a satisfactory balance between field and herbarium studies throughout his entire career. His life was largely devoted to an intensive study of the higher plants of temperate eastern North America. He knew the plants of this area intimately and could relate an interesting story about nearly every species. From the point of view of his students, some of his greatest moments were undoubtedly those spent on the shores of a pond on Cape Cod, or perhaps on a mountain slope in Newfoundland, where he would give a keen analysis of the principal characteristics of a plant in hand and then proceed to recite the points of distinction from closely related species, geographic ranges, and comparative usefulness to man. Such an unrehearsed performance could be ex-

pected many times in the course of a day in the field and never failed to elicit admiration for the well-ordered mind from which it came.

By far the largest amount of Fernald's published work concerned questions of the identities, accurate definition and geographic distribution of a wide range of vascular plants. He placed chief emphasis upon that aspect of taxonomic botany sometimes called floristics. Early in this work he discovered that the older botanists had not been too careful about checking and properly correlating the names in use with the specimens upon which they were originally based. The type concept had not been accepted then and they considered this unimportant. Since the plants of eastern North America had largely been distinguished and described by European botanists, Fernald often turned to the classical specimens preserved in European herbaria for authentic comparative materials. He was careful about going back to the type specimens for the verification of species concepts. On two occasions, in 1903 and again in 1930, he studied in various European centers for this purpose, but photographs of types played an important role in providing the basis for direct comparisons. In an earlier day, Asa Gray had studied many of these collections and in his own masterful way had set the pattern for subsequent workers. But Gray was not a field botanist and did not have at his command an intimate knowledge of many of our wild plants in their native haunts. As a result, there remained many problems for one of Fernald's talents. He knew the plants in the wild and with adequate collections of herbarium specimens to study in the laboratory, he was able to properly collate for the first time numerous species with their original descriptions and the specimens upon which they were based.

Gradually Fernald established himself as the leading authority on the flora of eastern North America and undoubtedly the pinnacle of his prestige among botanists of the world was reached upon the publication of the Eighth Edition of *Gray's Manual of Botany* in July, 1950. The rewriting and expansion of this century-old classic had absorbed a major portion of his energies for over fifteen years and he had been preparing for the task for a much longer time. As a young man he had collaborated with

B. L. Robinson in producing the Seventh Edition, published in 1908. But he had always been highly critical of that work and often remarked that it was done by a "specialist on the Compositae and a young man who knew nothing about the Flora." All will agree that during the more than forty years following his first participation in a revision of "the manual" he certainly corrected this deficiency. The Eighth Edition of *Gray's Manual* stands as a crowning achievement to a long and very active botanical career.

The results of much solid revisionary work were frequently interpolated into papers which otherwise dealt largely with floristics. But Fernald produced at least one large monograph that was a model of its kind.¹ In an extended review of this work W. H. Pearsall² writes as follows: "To students of the genus *Potamogeton* the publication of this excellent and exhaustive monograph is an event of outstanding importance. To British workers in a more restricted area it has always been a matter of surprise and regret that, with the exceptional facilities afforded by the great lakes and waterways of North America, no adequate attempt has previously been made by an American to critically study their Pondweeds. However, this reproach has now been removed, and we heartily congratulate Prof. Fernald upon the thoroughness, accuracy, and scientific value of his work. In our judgment the volume before us is superior in many ways to any existing account of the *Potamogetons* of this section."

Fernald was much interested in the distribution of the species of plants in space as shown by the frequency with which he dealt with this subject in his writings. This interest led ultimately to what are undoubtedly his most important generalizations in biology, for which he will be longest remembered. These generalizations grew out of an intensive study of floristic ranges. Early in his career, while exploring for plants on the Gaspé Peninsula and Newfoundland, he and his associates discovered numerous isolated species common to this region and the arctic, western America, the Atlantic Coastal Plain or western Europe. Later, similar discoveries were made in other areas of eastern

¹ The Linear-leaved North American Species of *Potamogeton*, Section *Axillares*. Mem. Amer. Acad. Arts & Sciences 27: 1-183. 1932.

² The Botanical Society and Exchange Club of the British Isles, Report for 1932. Vol. 10: 51-57. 1933.

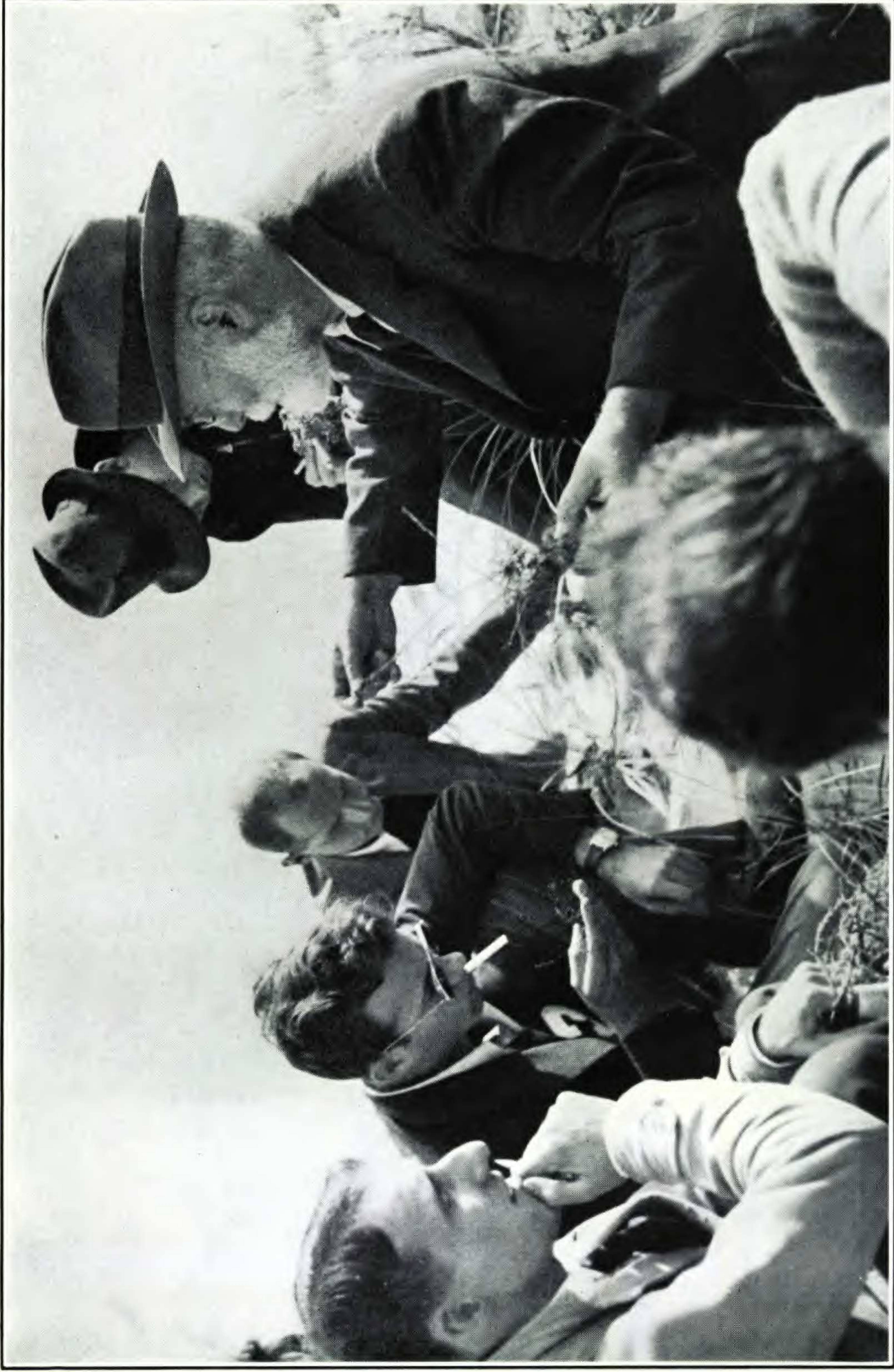


Photo by W. H. Hodge

FERNALD WITH HIS CLASS ON CAPE COD, 1938.

North America. How to explain the disruptions in the ranges of these plants was the question he tried to answer. As succinctly written by Professor Raup,³ "His most important work in the field of phytogeography probably was summarized in his paper, published in 1925, on the persistence of plants in unglaciated areas of Boreal America. In this paper he discussed the many enigmas of discontinuous range patterns manifested by so many plants in northeastern America, and, in so doing, presented a vast amount of specific evidence in support of the theory of persistence which had been so ably defended by Darwin. His work in this field has greatly stimulated research in two directions. One of these is in the re-examination by glacial geologists of the probable behavior of the Pleistocene ice in eastern America. Controversies raised in this connection still obtain. In another direction have been investigations of the inherent capacities of species to migrate, particularly as related to their genetic constitution and history. It is not impossible that in reemphasizing the theory of persistence and in stimulating studies of its modern implications, Professor Fernald has made the largest single contribution to phytogeography since Darwin."

Aside from his writings in taxonomy and phytogeography, Professor Fernald wrote entertainingly of his botanical expeditions to the Gaspé Peninsula, Newfoundland, and Virginia. These were journal accounts combining field botany, travel and many human interest incidents, all blended to give to the reader an extraordinary picture of a "botanist on location." His wide interest in the relationship of his own specialties to practical matters is demonstrated in a number of ways. For example, as mentioned in the preceding article by Professor Pease, one of his books, written with Professor A. C. Kinsey was entitled *Edible Wild Plants of Eastern North America*. Another instance is his participation as a consultant in the Labrador-Newfoundland boundary dispute argued before the Privy Council in London by the governments of the Dominion of Canada and the Colony of Newfoundland in 1926. His evidence that maritime plants found in the region of Hamilton Inlet extend westward to the head of Lake Melville was a decisive point in support of the territorial claims of the Newfoundland Government. A third

³ Merritt Lyndon Fernald. Harvard University Gazette 46: 78. 1950.

instance was his participation in a lively discussion concerning the location of Wineland the Good. When he learned that some of the important evidence for locating the point of discovery of the North American continent by the Norsemen in Nova Scotia or New England was botanical, he immediately examined this evidence. Some of his conclusions, not necessarily concurred in by philologists and others, were that the wild grape or "vinber" of the Norse was probably mountain cranberry (*Vaccinium vitis-idaea*) rather than our Wild Grape (*Vitis labrusca*) and that their "self-sown wheat" was more probably Strand Wheat (*Elymus arenarius*) than Wild Rice (*Zizania aquatica*) as others contended. As a result of his studies, he was convinced that the old Icelandic sagas referred to Norse landings far to the north of New England or Nova Scotia, most probably along the Labrador coast.

As an editor and editor-in-chief of RHODORA for many years, Professor Fernald handled many botanical publications sent in for review. These stimulated him to write critiques and reviews, many of which have become classics of their kind. Often he would become exasperated when handling a manuscript or paper not meeting his standards of excellence and sometimes their authors would receive a verbal spanking. On one such occasion he was heard to remark "Yes, — — — is a nice chap. His heart is in the right place. Wish I could say the same for his head." Certainly the whole man as a professional botanist would not stand inclusively touched upon were his role as a botanical critic not further mentioned. But here I turn to Dr. E. D. Merrill where in his citation of Professor Fernald at the presentation of the Leidy medal he has ably handled this aspect in the following words: "Fernald's published papers on various phases of botanical science exceed 700 [now over 750] in number. These, always highly critical, carefully prepared, well written, and full of the results of very keen observation, set an unusually high standard within their field. His trenchant criticisms of the work of others in the general field covered by his activities, while not always pleasing to those criticized, assist in maintaining the standards of American botanical scholarship. On one occasion when one of my former associates was requested to review a certain published paper, which was not all that it should have been, I heard him exclaim, 'Oh, for the pen of a Fernald.' In